

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
29 July 2004 (29.07.2004)

PCT

(10) International Publication Number  
**WO 2004/063182 A1**

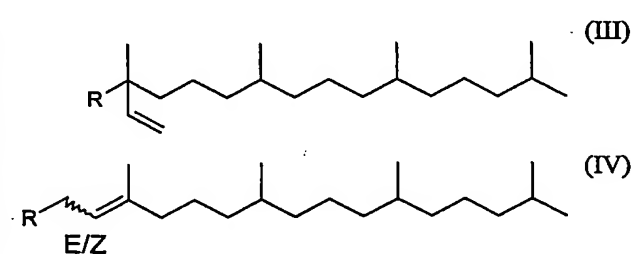
- (51) International Patent Classification<sup>7</sup>: **C07D 311/72** (74) Agent: MUELLER, Ingrid; Wurmisweg 576, CH-4303 Kaiseraugst (CH).
- (21) International Application Number: PCT/EP2003/014723 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 22 December 2003 (22.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
03000493.1 13 January 2003 (13.01.2003) EP  
03024288.7 23 October 2003 (23.10.2003) EP
- (71) Applicant (*for all designated States except US*): DSM IP ASSETS B.V. [NL/NL]; Het Overloon 1, NL-6411 TE Heerlen (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): BONRATH, Werner [DE/DE]; Luckenbachweg 29, 79115 Freiburg (DE). DITTEL, Claus [DE/CH]; Wengistrasse 29, CH-4500 Solothurn (CH). NETSCHER, Thomas [DE/DE]; Am Huligraben 2, 79189 Bad Krozingen (DE). PABST, Thomas [DE/DE]; Im Anger 44, 93098 Mintraching (DE). GIRAUDI, Lisa [FR/FR]; 6 A, rue Wilson, F-68330 Huningue (FR).
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR THE MANUFACTURE OF  $\alpha$ -TOCOPHERYL ACETATE



metal cation, n is the valence of the cation  $M^{n+}$ , and  $R_1$  is fluorine,  $C_{1-8}$ -perfluoroalkyl or perfluoroaryl, and, if required, cyclizing any 3-phytyl-2,5,6-trimethylhydroquinone-1-acetate or a double bond isomer thereof obtained as an intermediate reaction product, to produce  $\alpha$ -tocopheryl acetate. In the catalyst  $M^{n+}$  is preferably  $Ag^+$ ,  $Cu^+$ ,  $Ga^{3+}$ ,  $Sc^{3+}$ ,  $Lu^{3+}$ ,  $Ho^{3+}$ ,  $Tm^{3+}$ ,  $Yb^{3+}$  or  $Hf^{4+}$ .